

What is claimed is:

1. A driving method for a plasma display panel having an address electrode, a first display electrode formed on said address electrode, a second display electrode formed on a surface opposing 5 to said the first display electrode, and a partition wall formed between said first display electrode and said second display electrode, comprising the following steps:

a first step for conducting addressing operation for each sub-field; and

10 a second step for conducting sustaining operation for display upon basis of a result of said addressing, wherein,

15 in said second step, onto said second display electrode is applied pulse voltage differing in polarity and nearly in synchronism with first sustain pulse voltage to be applied onto said first display electrode, thereby forming space charges generated after discharge between said address electrode and said first display electrode in form of wall charges on said second display electrode.

20 2. A driving method for a plasma display panel having an address electrode, a first display electrode formed on said address electrode, a second display electrode formed on a surface opposing to said the first display electrode, and a partition wall formed between said first display electrode and said second display electrode and including a metal electrode therein, comprising the 25 following steps:

a first step for conducting addressing operation for each sub-field; and

a second step for conducting sustaining operation for display

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upon basis of a result of said addressing, wherein,

- in said second step, onto said second display electrode is applied pulse voltage differing in polarity and nearly in synchronism with sustain pulse voltage following after second one  
5 to be applied onto said first display electrode, thereby forming space charges generated after discharge between said first display electrode and said metal electrode in form of wall charges on said second display electrode.

3. A driving method for a plasma display panel having an address electrode, a first display electrode formed on said address electrode, a second display electrode formed on a surface opposing to said the first display electrode, and a partition wall formed between said first display electrode and said second display electrode and including a metal electrode therein, comprising the following steps:

a first step for conducting addressing operation for each sub-field; and

a second step for conducting sustaining operation for display upon basis of a result of said addressing, wherein,

- 20       in said second step, onto said first display electrode is applied pulse voltage differing in polarity and nearly in synchronism with first sustain pulse voltage to be applied onto said second display electrode, thereby forming space charges generated after discharge between said second display electrode  
25 and said metal electrode in form of wall charges on said first display electrode.

4. A driving method for a plasma display panel, described in any one of the claim 1, wherein in said second step, onto said address electrode is applied short pulse voltage, being different in polarity, at a time earlier than rise-up of the first sustain

pulse voltage to be applied onto said first display electrode.

5. A driving method for a plasma display panel, described  
in any one of the claim 2, wherein in said second step, onto said  
address electrode is applied short pulse voltage, being different  
5 in polarity, at a time earlier than rise-up of the first sustain  
pulse voltage to be applied onto said first display electrode.

6. A driving method for a plasma display panel, described in any one of the claim 3, wherein in said second step, onto said address electrode is applied short pulse voltage, being different in polarity, at a time earlier than rise-up of the first sustain pulse voltage to be applied onto said first display electrode.

7. A driving method for a plasma display panel, described in any one of the claim 1, wherein in said second step, nearly in synchronism with the sustain pulse voltage to be applied onto said first display electrode, onto said address electrode is applied pulse voltage, being same in polarity, for reducing an influence of capacity between said address electrode upon said first display electrode.

8. A driving method for a plasma display panel, described  
in any one of the claim 2, wherein in said second step, nearly  
in synchronism with the sustain pulse voltage to be applied onto  
said first display electrode, onto said address electrode is  
applied pulse voltage, being same in polarity, for reducing an  
influence of capacity between said address electrode upon said  
first display electrode.

9. A driving method for a plasma display panel, described in any one of the claim 3, wherein in said second step, nearly in synchronism with the sustain pulse voltage to be applied onto said first display electrode, onto said address electrode is applied pulse voltage, being same in polarity, for reducing an influence of capacity between said address electrode upon said

first display electrode.

10. A driving method for a plasma display panel, described in any one of the claim 1, wherein in said first step, said address electrode and said first display electrode are formed on a same plane, and the address pulse voltage onto said address electrode upon basis of a picture signal and scan pulse voltage onto said first display electrode are applied nearly in synchronism therewith, so as to remove the wall charge formed in advance on both the electrodes without accompanying luminous discharge, thereby 10 selecting a non-luminous cell.

11. A driving method for a plasma display panel, described in any one of the claim 2, wherein in said first step, said address electrode and said first display electrode are formed on a same plane, and the address pulse voltage onto said address electrode upon basis of a picture signal and scan pulse voltage onto said first display electrode are applied nearly in synchronism therewith, so as to remove the wall charge formed in advance on both the electrodes without accompanying luminous discharge, thereby selecting a non-luminous cell.

20 12. A driving method for a plasma display panel, described in any one of the claim 3, wherein in said first step, said address electrode and said first display electrode are formed on a same plane, and the address pulse voltage onto said address electrode upon basis of a picture signal and scan pulse voltage onto said 25 first display electrode are applied nearly in synchronism therewith, so as to remove the wall charge formed in advance on both the electrodes without accompanying luminous discharge, thereby selecting a non-luminous cell.

30 13. A driving method for a plasma display panel, described in any one of the claim 1, wherein in said second step, onto either one or both of said first and second electrodes is applied the first sustain pulse voltage, corresponding thereto respectively,

and as the sustain pulse voltage following after the second one is applied sustain pulse voltage, being narrower in pulse width than that of said first sustain pulse voltage.

14. A driving method for a plasma display panel, described  
5 in any one of the claim 2, wherein in said second step, onto either one or both of said first and second electrodes is applied the first sustain pulse voltage, corresponding thereto respectively, and as the sustain pulse voltage following after the second one is applied sustain pulse voltage, being narrower in pulse width  
10 than that of said first sustain pulse voltage.

15. A driving method for a plasma display panel, described  
in any one of the claim 3, wherein in said second step, onto either one or both of said first and second electrodes is applied the first sustain pulse voltage, corresponding thereto respectively, and as the sustain pulse voltage following after the second one is applied sustain pulse voltage, being narrower in pulse width  
than that of said first sustain pulse voltage.

16. A driving method for a plasma display panel having an address electrode, a first display electrode formed on said address electrode, a second display electrode formed on a surface opposing to said the first display electrode, and a partition wall formed between said first display electrode and said second display electrode and including a metal electrode therein, comprising the following steps:

25 a first step for plural numbers of sub-fields to conduct all write-in, respectively;

a second step for conducting addressing operation;

a third step for conducting sustaining operation; and

a fourth step for conduction erase operation, wherein,

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in said first step, wall charge is formed through initial discharge caused by applying pulse voltages onto said address electrode and said first display electrode, respectively, and by causing self-erase discharge after said pulse voltages are removed,  
5 wall charge is formed by applying voltages onto said address electrode and said first display electrode, respectively;

in said second step, address pulse voltage is applied onto said address electrode upon basis of the picture signal, nearly in synchronism with scan pulse voltage onto said first display electrode, so as to remove said wall charge without accompanying  
10 luminous discharge, thereby selecting a non-luminous cell(s);

in said third step, onto a luminous cell(s) selected through forming said wall charge, short-pulse voltage is applied onto said address electrode and sustain pulse voltage onto said first display electrode, so as to cause pre-discharge, and thereafter, by means of sustain pulse voltages applied onto said first display electrode and said second display electrode alternately, display luminous discharge is repeated through the initial discharge between said metal electrode grounded to the earth, thereby applying a last sustain pulse voltage onto said second display electrode; and  
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in said fourth step, only onto said first display electrode, or onto said first display electrode and said address electrode, respectively, thin-line short pulse voltage is applied, thereby causing discharge for erasing the wall charge between said metal electrode, said address electrode, and said second display electrode.  
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17. A driving method for a plasma display panel, as described in the claim 16, wherein, in said first step, onto said address electrode and said first display electrode are applied the short-pulse voltages being different in polarity for generating the space charge through the initial discharge and long-pulse voltages being different in polarity for forming the wall charge,  
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respectively, generating self-erase discharge after removal of said long-pulse voltages, voltages are applied onto said address electrode and said first display electrode, respectively, thereby forming the wall charge.

- 5        18. A driving method for a plasma display panel, as described  
in the claim 17, wherein, in said first step, sum of the voltages,  
being applied onto said address electrode and said first display  
electrode, respectively, in absolute value thereof, is made larger  
in case of said short-pulse voltage than that in case of said  
10 long-pulse voltage.

19. A driving method for a plasma display panel, as described in the claim 17, wherein at least one of said plural numbers of sub-fields causes the space charge with using said short-pulse voltage in said first step, while in remaining sub-field(s) using no such the short-pulse voltage is shared in common the space charge, which is caused by said thin-line short pulse voltage applied only onto said first display electrode, or onto said first display electrode and said address electrode, respectively, in said fourth step.

- 20        20. A driving method for a plasma display panel, as described  
in the claim 16, wherein in said third step, during repetition  
of the display luminous discharge through the initial discharge  
between said metal electrode grounded to the earth by means of  
the sustain pulse voltage, being applied onto said first display  
25      electrode and said second display electrode, alternately.

onto said second display electrode is applied pulse voltage, being different in polarity and nearly in synchronism with the sustain pulse voltage to be applied onto said first display electrode, thereby forming the space charge generated after the discharge between said address electrode or said metal electrode and said first display electrode, in form of wall charge on said second display electrode, and

onto said first display electrode is applied pulse voltage, being different in polarity and nearly in synchronism with the sustain pulse voltage to be applied onto said second display electrode, thereby forming the space charge generated after the  
5 discharge between said second display electrode and said address electrode, in form of wall charge on said first display electrode.